

MR2349-941

Serial Number: 10/002,369

Reply to Office Action dated 7 October 2003

REMARKS

Responsive to the 7 October 2003 final Office Action, the undersigned Attorney conducted a telephonic interview of the Examiner on 6 January 2004 for the purpose of seeking clarification on the rejections set forth by the Examiner in that final Office Action. During the course of that interview, the Examiner recognized that a misinterpretation had been made of a portion of the Schicktanz, et al. reference. The Examiner accordingly withdrew the 35 U.S.C. § 103(a) rejection of Claims 4-8 that he had set forth in the final Office Action based on that reference. He noted, however, that the separate rejection of Claims 4-8 based on the Narita, et al. reference remained unaffected by such withdrawal.

Responsive to the 7 October 2003 final Office Action and the 6 January 2004 telephonic interview, Claims 1 and 8 have now been further amended. The amendments to Claim 1 merely incorporate clarification of features already recited therein. Claim 8 is simply reworded to proper apparatus claim form, obviating the Examiner's concern that it had constituted a product-by-process claim.

In the final Office Action, the Examiner rejected Claims 4-8 under 35 U.S.C. § 103(a) as being unpatentable over the Narita, et al. reference. The Examiner stated that Narita, et al. discloses a metal alloy shaft 2 with a ceramic bearing 1. The Examiner acknowledged that Narita, et al. fails to disclose the claimed hardness values, but concluded that it would have been obvious to one of ordinary skill in the art to have employed them. The Examiner also acknowledged that Narita, et al. discloses a ball type

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bearing instead of a sliding bearing or bushing, but again concluded that the alternate use of a sliding bearing in place of a ball bearing would have been obvious to one of ordinary skill in the art. The Examiner reasoned in this regard that ball bearings tend to be expensive due to the high tolerances needed for the balls and, therefore, choosing a sliding bearing as a functional equivalent would have been a matter of mere design choice.

Applicant's claimed mechanism is one which employs "a planar sliding bearing," as newly-amended Claim 4 now more clearly recites ("planar bearing" having been originally recited in cancelled Claim 1), as well as "an axially extended shaft [which] extend[s] coaxially into ... [a] bore" defined by the sliding bearing. That is, the sliding bearing is provided with the axially extended shaft such that it is "telescopically disposed therein," with the "shaft having an outer surface portion slidably engaging ... [the] inner surface portion of said sliding bearing," as Claim 4 also now clarifies.

The full combination of these and other features even more clearly recited now by Applicant's Claims is nowhere disclosed by the cited Narita, et al. reference. While the reference does disclose a ceramic bearing 1 disposed about a metal shaft 2, the reference makes clear that no relative movement occurs at the point of actual engagement between the two components. The reference unambiguously notes in this regard that the shaft is "made of metal and fitted in the inner ring for rotation therewith," (Column 1; Lines 44-45).

Such fixed engagement between the metal shaft 2 and inner ring 1a of the ceramic bearing 1 flatly rejects any notion that Narita, et al.'s "shaft" itself is formed with "an outer

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surface portion slidably engaging ... [an] inner surface portion of ... [a] sliding bearing," as

Claim 4 clearly recites.

Such clear teaching of the ceramic bearing's inner ring fixedly engaging the metal shaft 2 precludes any structural deviation that would altogether replace this fixed engagement with a slideable engagement attending the use of a sliding bearing. Perhaps even more notable than this is that the reference sets out for the very purpose of "assuredly preventing the ceramic bearing from being damaged or broken" from its engagement of the metal shaft "due to a thermal expansion differential between the bearing and shaft," (Column 1; Lines 57-60). It is somewhat fundamental that minimizing the actual area of engagement is essential toward that end. Narita, et al.'s use exclusively of a ring-shaped ceramic bearing 1 clearly reflects recognition of this need to minimize the area of engagement, and forecloses any substitution of that ceramic bearing 1 with a bushing or the like which would greatly expand engagement area. Hence, the reference teaches loudly against the use in place of its ceramic bearing 1 a "planar sliding bearing" into which a shaft would "extend[ ] coaxially ... to be telescopically disposed therein," with its "outer surface portion slideably engaging ... [the] inner surface portion" thereof, that Claim 4 now more clearly recites.

What is more, the Examiner's rationale for the ceramic bearing's replacement being motivated by "cost" concerns - given that "[b]all bearings are expensive due to the high tolerances needed for the balls" - is undermined by Narita, et al. itself. The reference

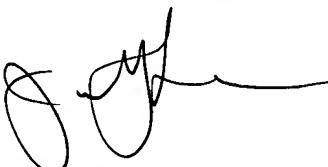
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specifically notes one particular advantage of its disclosed assembly to be none other than that it "is economical in cost," (Column 1; Lines 64-65). It stands to reason that one could not properly justify modification of the disclosed structure in the name of avoiding high costs, when the disclosed structure itself is disclosed as it is *for that very reason*.

It is respectfully submitted that, with the rejections based upon the Schicktanz, et al. reference having been withdrawn, the remaining Narita, et al. reference fails to disclose the unique combination of elements now more clearly recited by Applicant's pending Claims for the purposes and objectives disclosed in the subject Patent Application.

It is believed that the subject Patent Application has now been placed fully in condition for allowance, and such action is respectfully requested.

Respectfully submitted,  
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